



QUANTIC

The UK Quantum Technology Hub
in Quantum Enhanced Imaging

Fresnel cone technology: Optimised structured polarisation beams

Radial polarised light beams are associated with a reduced laser beam spot size, with applications including high precision laser cutting, micromachining and two-photon fluorescence microscopy. Fresnel cones offer a robust method to convert linear to radial polarization.

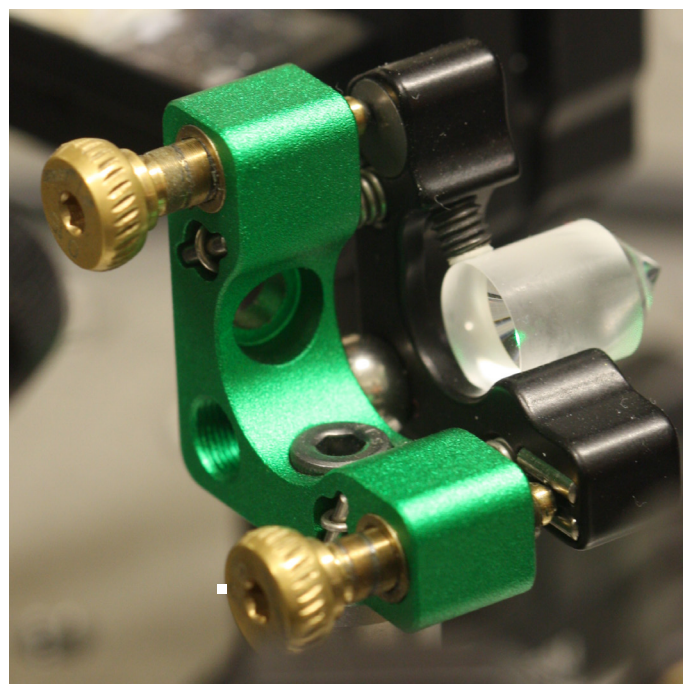
Photonic technologies traditionally use light with uniform polarisation and phase profiles. More recently beams with structured polarisation have gained interest due to their unique properties, including improved focussing to achieve increased resolution and peak power. However current methods of producing these structured polarisation light sources are restricted to single wavelengths, are costly, deteriorate quickly or can't handle high laser powers.

With **Fresnel cone technology**, researchers at QuantIC have overcome previous limitations by developing an innovative method of generating structured polarisation beams which offer:

- High damage threshold
- Suitability for broadband applications
- Generation of high precision donut beams

QuantIC is seeking to explore the feasibility of Fresnel cone technology in research and industrial imaging applications such as:

- Bio imaging
- Precision Manufacture
- Lithography
- Medical devices
- Astronomy
- Nanotechnology



QuantIC has a £4M Partnership Resource Fund to support industry-led projects. Work with us to develop new technology and facilitate its translation into commercial products.

For more information, please contact:

Dr Michael Fletcher
QuantIC Business Development Manager
michael.fletcher@glasgow.ac.uk

Dr Sonja Franke Arnold
Project Technology Lead
sonja.franke-arnold@glasgow.ac.uk

www.quantific.ac.uk

 @QuantIC_QTHub



UK NATIONAL
QUANTUM
TECHNOLOGIES
PROGRAMME